

OUR MOTHER EARTH- A MASTERPIECE TO CARE IT AGAINST THE PROBLEMS- A REVIEW

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Abstract

According to Hinduism “the earth is our mother and we are all her children”. The people in Greece during ancient period worshipped Earth Goddess. According to the tradition of Judeo-Christian “God gave the earth to his people and their offspring as an everlasting possession to be cared for and passed on to each generation”. Majority of the people have used the mother earth by exploiting it to satisfy their own needs. Due to this exploitation, there is an excessive damage caused for the ecosystem. Thus, there is a need for active wisdom amongst the people and their full participation to protect the mother earth. So, the best solution to rectify the damage caused to the environment are promoting sources of energy which are renewable and promoting the sustainable energy resources. There is a need for “Life Cycle Assessment” (LCA) which looks into the carbon foot prints which will help to reduce the loads of pollution into the ecosystem.

Keywords: eco system, pollutions, greenhouse gases, environmental issues, sustainable development

Introduction

There is a close relationship between the mother earth and its indigenous people. If we consider the historical perspective, we can find that both preservation and protection have been a major part towards the cultural as well as the religious ethos especially in most of the human communities. Native Americans, Greeks, Ancient Hindus thrived on nature in most parts of the world. People worshipped mother earth believing it to be the purest form of creation of God. According to Hinduism “the earth is our mother and we are all her children”. The people in

Greece during ancient period worshipped Earth Goddess. According to the tradition of Judeo-Christian "God gave the earth to his people and their offspring as an everlasting possession to be cared for and passed on to each generation". Majority of the people have used the mother earth by exploiting it to satisfy their own needs. Due to the coercive means and production technologies, this has created a violence towards destroying the mother earth. This has caused the people devoid of water and food by contaminating it by releasing poisonous substances and toxic chemicals, thereby killing the species on the environment. Due to this, our environment is succumbed to a serious dangerous condition. Through a combined forces between organizations, state bureaucracies and sophisticated frameworks only, we can save our mother earth. Thus, there is a need for active wisdom amongst the people and their full participation to protect the mother earth.

So, the best solution to rectify the damaged caused to the environment are promoting sources of energy which are renewable and promoting the sustainable energy resources. There is a need for "Life Cycle Assessment" (LCA) which looks into the carbon foot prints which will help to reduce the loads of pollution into the ecosystem. There is also a need to create awareness related to environmental protection amongst the people, establishing industries which are protecting the environment and also transform the economic development mode.

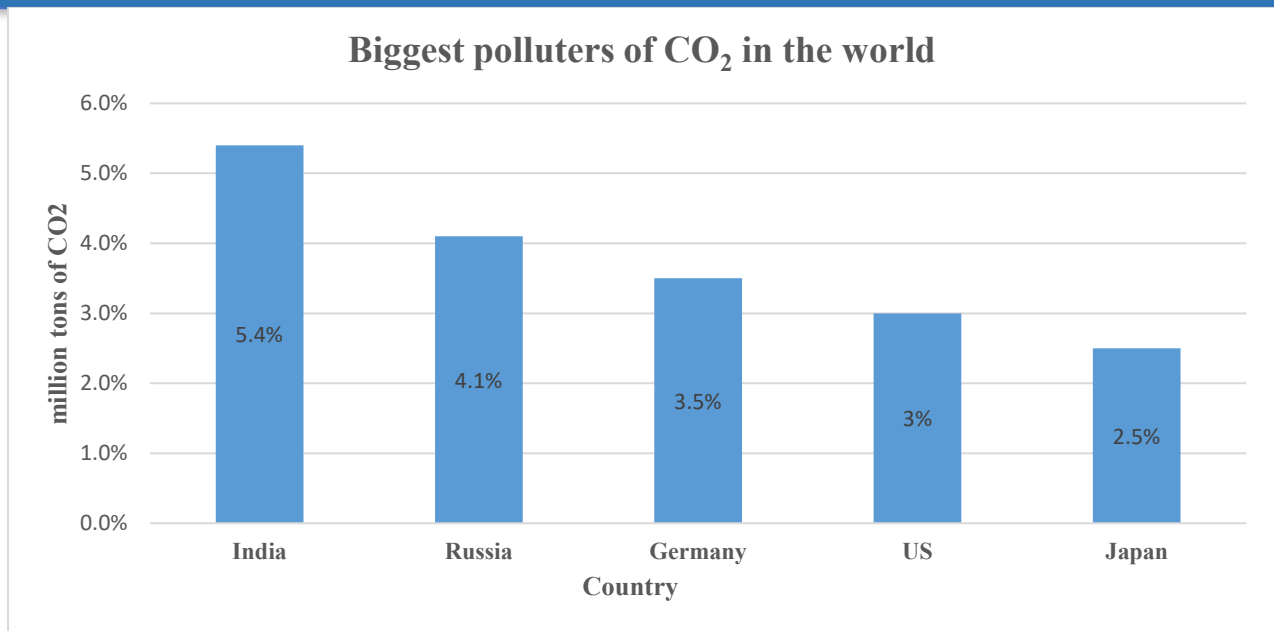
Problems destroying the mother earth

Since a span of 50 years, the human beings have altered the ecosystems more extensively than before to cater to the demands for obtaining fuel, fibre, timber, fresh water and food. Due to huge population, they pollute the environment by discharging industrial and municipal wastewater including solid wastes. These environmental pollutions are mainly due to spilling, leakage, deliberate disposal and mishandling the waste products such as lubricating oils, gasoline, diesel fuel, heating oil, human excreta, animal wastes, organic compounds such as carbon- hydrate, urea and organic salts such as chloride ions, calcium, potassium, sodium, phosphates of detergent, soap and nitrates. Many of the pollutants coming from the sewage are biodegradable, but they are in bulk; thus, they become a threat to the environment. Health related to ecosystems are mainly due to the good availability of water. If there is loss of biodiversity, then there is a reduction in the ecosystem services related to the human well-being. Thus, there is a need for a sustainable water management and sanitation for a good management of the ecosystems for

future use (1). Today whenever we say the term “war”, we relate to war taking place between the Palestine and Israel, Syria, Afghanistan and Iraq or between the communist insurgents and the Philippine government. But in reality, there is a mightier war than this and that is the war taking place against the natural resources of earth. Many a time these people use deceit or do manipulations to encroach these lands (2). Due to the human civilisation, there is a disintegration taking place in the ecosystem. This has become a heated topic in today’s human civilisation. Because of the reckless human activities, there is an increase in the carbon footprint contents in the environment leading to the disruptions and damages to the entire ecosphere. There is a huge carbon footprint pollution which is increasing gradually. There is rampant poverty existing in India, which creates a huge pressure on the surrounding ecosystems by contaminating the different abiotic things existing in the environment. Under the pretext of saying developmental activities, the developed countries of the world are recklessly exploiting the rich natural resources in our country by constructing large dams, mining activities, residential complexes, business apartments, etc. Due to deforestation, use of herbicides, rodenticides, fungicides, insecticides, pesticides and chemical fertilisers and also the emission of greenhouse gases, there is a gigantic negative effect taking place in agricultural activities. There is a huge impact on different natural resources like acid mine drainage, acid rain and photochemical smog. Due to natural hazards like tsunami, desertification, drought and flood, there is an increase in the environmental refugees. Because of the anthropogenic activities, the climate is also undergoing changes leading to the reduction in the productivity of agriculture which has caused scarcity of food. There is a mammoth increase of the greenhouse gases. All these have resulted in the disintegration of the ecosystem components. According to Environmental Kuznet’s Curve (EKC), the period during the pre-industrial showed that there were a low Gross Domestic Product (GDP) and per capita income; thereby even the degradation on the environment was also very low. But, during the industrial time, the per capita income and GDP increased tremendously, thereby leading to a hike in the emission of greenhouse gases which has constantly degraded the ecosystems. Thus, there is a need for a proper management of different ecosystems which reduces the emissions of the greenhouse gases; thus, restoring the ecosystems (3). Because of the introduction of globalization, the standard of living of the people has improved a lot. This has resulted in more demands by the people. Due to demand, it leads to benefits which fulfil the businessmen’s pocket. Thus, a greater number of industries have been established. There are numerous factories existing in the world and due to this, a large number of affluent wastes as well as sewage wastes are discharged from both households and factories.

These are discharged directly to the environment without even being fully processed. Thus, there is a lack of land for sustenance. The question here is “Where is the land for storing such unprocessed wastes?” Of late, our mother earth is gradually dying, there is a depletion of the ozone layer and global warming which has led to diseases, misery, floods, famines and drought. This makes our earth a dangerous situation which leads to damaging the people’s lives. But it is not too late to protect our mother earth by enforcing positive actions. There are mainly many reasons leading to environmental crisis such as excessive burning of fossil fuels, chloro-fluoro-carbons, using lead in petrol, deforestation and water pollution. For undertaking human activities, we depend on fossil fuels like natural gas, oil, coal. The main reasons for these are the power stations and cars which excessively depend on the fossil fuels. Burning of fossil fuels releases carbon leading to greenhouse effect. Along with these gases, there is also the release of sulphur di oxide from the fossil fuels which leads to acid rain. The chloro-fluoro-carbons are mainly used in polystyrene foam, air-conditioning units, fridges and aerosols. Because of CFC there is depletion of the ozone layer which results in holes in the ozone layer making the earth warmer and warmer. The sun’s harmful UV rays are directly entering the earth’s atmosphere and land causing skin cancer to the human beings. Some of the people still use the “old-fashioned” leaded petrol which pollutes the atmosphere. Lead badly affects the nervous system of the human beings (4). For development, growth, nutrition and a high quality of life, all living species crave on their natural habitats for their sustenance. There is a tremendous emissions of poisonous greenhouse gases leading to global warming. Due to climatic changes such as rise in floods, droughts, rising hotter seas as well as acrid waters, it has posed a threat to the populated areas and also for the aquatic ecosystems as well. Marine ecosystems provide many benefits to humans such as irrigation, drinking water, habitat for significant commercial fisheries and also for leisure activities. Due to a rise in the greenhouse gases, there has been a profound shift in ecological systems irreversibly. Many problems have aroused such as decline in the ocean productivity, change in the dynamics of food web, changes in the range of species, less common formation of habitat species (5). Theoretically we can protect large volumes of species in small regions. One third of plants is present on the land of earth’s surface. Due to the impacts of human beings, most of the species are becoming extinct to about 1000 times than its rate of natural regeneration. Thus, there is a need to protect the number of different varieties of species present on earth. To quote some examples, there is a reckless deforestation in Amazon regions; this might lead to a dangerous consequence to the vast climatic change (6). Due to climatic change, there is a geographical redistribution taking place between animal and plant species worldwide.

Because of these shifts, it leads to a new ecological community and a new ecosystem, affecting the human society towards the cool extremes, there is a movement of species towards the poleward, simultaneously there is a contraction in the range limits towards the warm range edge with intolerable temperatures. Species on land are moving towards a high cool elevation; the species living in the oceans are progressing towards cold water at a deep depth. Due to these erratic changes, there is a disruption amongst the species and new changes are developing which has affected both human and biological communities (7). Due to the climate change, there is an increase in the concentrations of atmospheric carbon di oxide and ocean acidification. There are other problems related to the ecosystems such as fragmentation, defaunation and degradation. Due to the emissions of the greenhouse gases, there is a threat to the resilience and viability of all the natural ecosystems and human societies have been badly affected. In recent years, this problem has increased tremendously. According to the Report of International Panel on Climate Change 2018, it has stated that the earth would warm up beyond 1.5⁰ C leading to climatic changes involving rise in the sea-level, heat waves, floods and drought which would be detrimental to humans and also for the bio-diversity. Due to a change in the natural ecosystems, it has resulted in a negative impact on the biodiversity worldwide and this has affected the food production globally. Because of the climate change, there is a loss in the biodiversity that affects the carbon storage in the ecosystem both indirectly and directly (8). Due to extreme climatic changes, the species distributions, biodiversity and phenology all these are tremendously changing the local ecosystem. This has badly impacted on carbon sequestration, water purification and pollination. Due to droughts, there is the reduction in the agricultural productivity. This has led to a fall in the food security. Even the local residents have been facing financial challenges. The droughts and floods have created a negative impact on both the people and infrastructure. The main people who are badly affected are those who depend on the natural resources and agriculture. This has impaired their economic stability and standard of living. The climatic changes have led to heat related illness and vector-borne infections (9). Due to the interaction between nitrogen species and reactive oxygen, the excessive results of biochemical reactions have led to the imbalances in the homeostatic process causing oxidative stress on the ecosystem. Hence, there is a need for a balance between antioxidation and oxidation which is very much important to maintain a good healthy ecological system (10).



Source: Climate watch data 2020

Figure 1: Bar graph showing the biggest polluters of carbon dioxide in the world

According to the climate watch data 2020, it was found that China emitted 10.700 mt of CO₂, USA emitted 4.800 mt of CO₂, EU emitted 2.700 mt of CO₂. India emitted 2.500 mt CO₂ and the last place is occupied by 1.700 mt of CO₂.

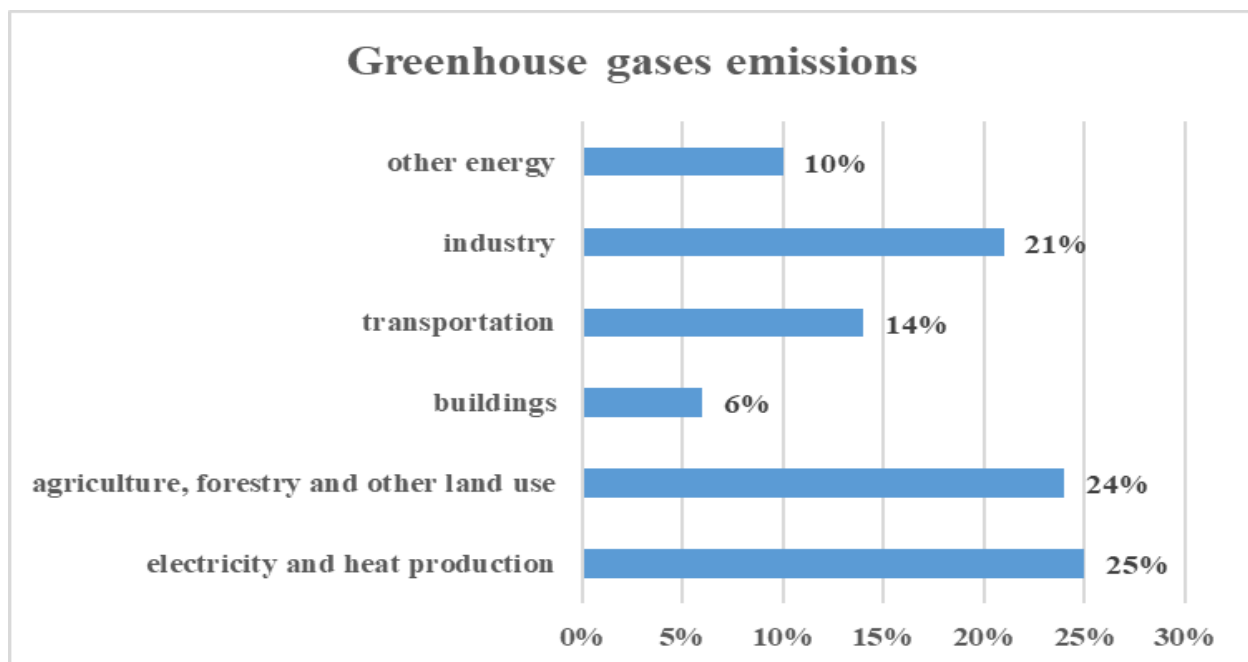
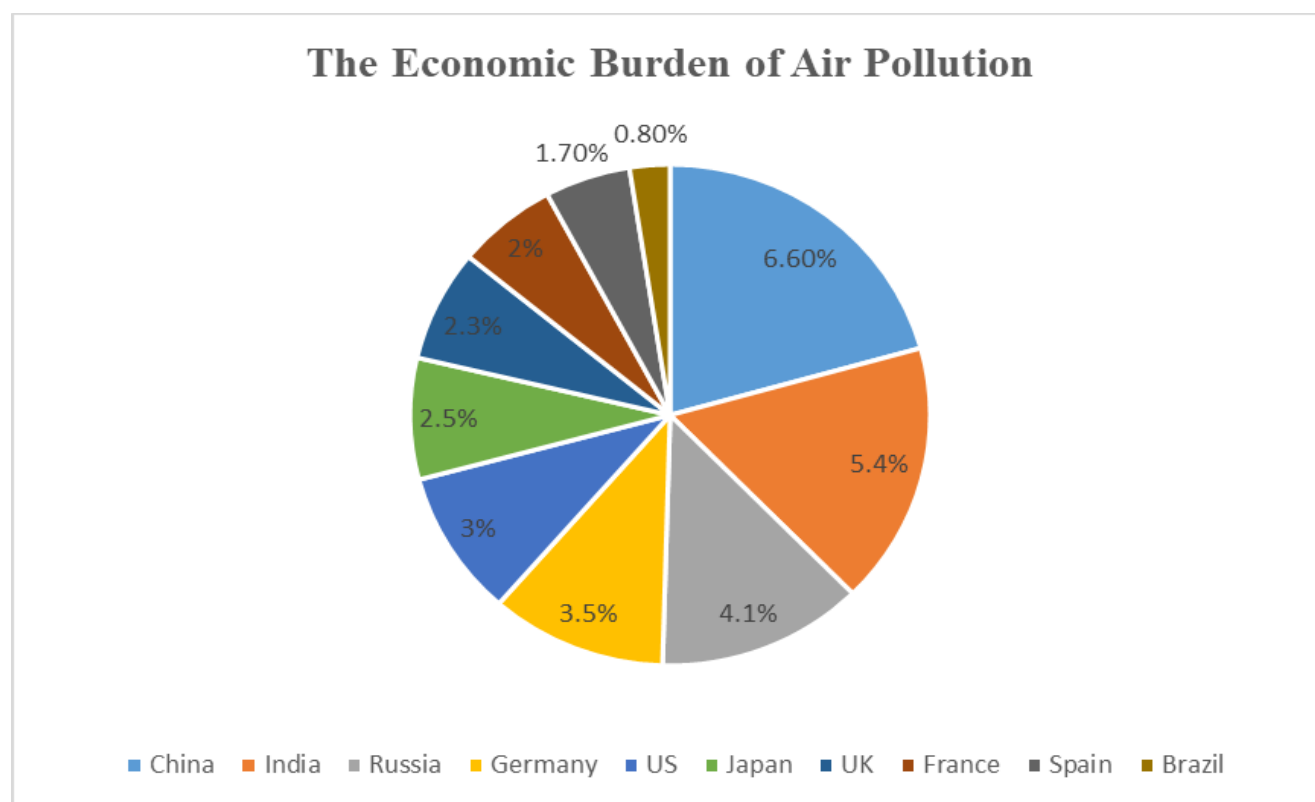


Figure 2: Bar graph showing the greenhouse emissions in most of the economic sectors of India

According to the above data, we can see that the electricity and heat production emits 25 percent of greenhouse gases, agriculture, forestry and other land use gives 24 percent of greenhouse gases followed by 6 percent from buildings, 14 percent from transportation, 21 percent from industry and 10 percent from other energy.



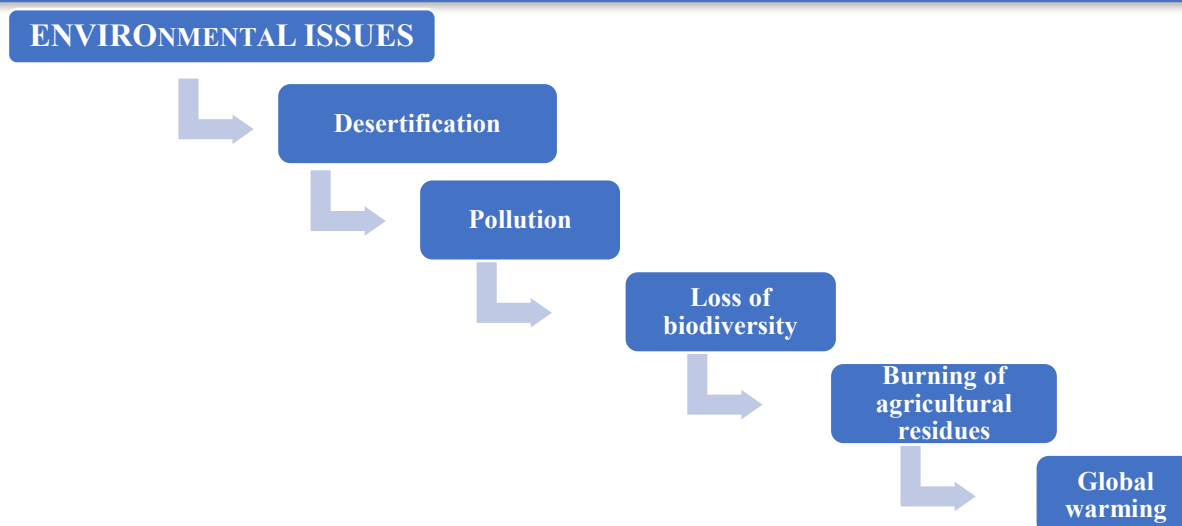
Sources: Greenpeace calculated in 2018, Center for Research on Energy and Clean Air

Figure 3: The Economic Burden of Air Pollution

According to the pie chart, around 6.6 percent of air pollution is from China, 5.4 percent is from India, 4.1 percent is from Russia, 3.5 percent is from Germany, 3 percent is from United States, 2.5 percent is from Japan, 2.3 percent is from UK, 2 percent is from France, 1.7 percent is from Spain and 0.8 percent is from Brazil.

Figure 4: Flow chart showing various environmental issues

The figure 4 shows various environmental issues like desertification, pollution, loss of biodiversity, burning of agricultural residues leading to global warming.



Solutions to curb environmental problems

Mother Earth is the place consisting of both biotic and abiotic components. There are a constant energy exchange and matter taking place between living and non-living things. This is called as bio geochemical cycle. This cycle plays a main role in maintaining the entire earth's ecosystem. Due to various anthropogenic activities, the eco restoration is greatly disturbed. Thus, to save the environment there is a need for green technologies in order to attain the Sustainable Development Goals (11). To restore the biodiversity crisis, there is a need to take measures to provide to the humans. Around 400 studies conducted worldwide, it has been found that there are a huge disturbance taking place in the ecosystems such as agriculture and logging; even oil spills but the recovery phase cannot be done completely. Thus, there is a need to protect the biodiversity. The challenges faced to recover in the last stages are very pertinent. To overcome this, the first priority is passive recovery. The main cause of incomplete recovery is inadequate time to overcome the problems related to the ecosystem recovery (12). World meter has recorded that around 8.1 billion species thrive on earth and earth provides major resources such as water and oxygen for survival. But due to the advancement of machinery and technology, human beings have devastated the environment recklessly. Because of this irrational behaviour of human beings, there is a threat for the ecosystems which needs an immediate measure to safeguard our mother Earth. So, the best solution to rectify the damaged caused to the environment are promoting sources of energy which are renewable and promoting the sustainable energy resources (13). To improve the ecosystems, various options of managing the ecosystems may be implemented. First of all, we have to generate very less waste and pollute less. For this there is a need to implement 3R concept i.e., "recycling of unused raw materials,

reuse of wastes to produce other by-products and recovery of valuable materials from waste remains". To reduce the generation of waste streams, there is a need for an integrated treatment approach. By using "Integrated treatment Management" Approach (IPM), we can increase the agricultural productivity. Using the process of combining chemical fertiliser with biofertilizer, the activities amongst the farming communities can be enhanced. This results in the optimum production of crops. By using bio-fertilisers, the fertility of the soil can be enhanced; this helps to restore the soil health which simultaneously pollute less amount. Instead of chemical products like rodenticides, fungicides, herbicides, pesticides etc bio pesticides can be implemented. Through afforestation and reforestation, the green cover can be increased. By changing our pattern of consumption and using the natural resources efficiently, we can achieve a sustainable development in our economy. Using biodegradable wastes, we can produce bio-energy by implementing the process of vermicomposting and bio composting. Before establishing a large development project, there is a need for Environmental Impact Assessment (EIA). At each and every stage of production activities, environmental inventory, green accounting and eco audit must be enforced. There is a need for "Life Cycle Assessment" (LCA) which looks into the carbon foot prints which will help to reduce the loads of pollution into the ecosystem. There is a need to create awareness on protecting the environment right from the basic level to the research level in the society without prioritising the gender, culture and age also with the economic conditions as well. This leads to reduction in the degradation of the ecosystem. To ameliorate the ecosystems, the services of trade-off analysis can be implemented. Using the trade-off analysis, we can balance the benefits and costs of the human uses related to the ecosystem (14). To dampen the negative impacts on environment protection, the most contentious way is to promote regional cooperation, nurture high-end talents, promote technological innovation. There is also a need to create awareness related to environmental protection amongst the people, establishing industries which are protecting the environment and also transform the economic development mode. Thus, if both these are continuously bolstered, then there would be a positive correlation between economy and environment (15). Of late, people have started realising that the time has come to protect the mother earth. We need to properly think about curtailing the biodiversity loss. To decrease excessive pressure on the earth, we need to understand how to reduce the excessive consumption and resource extraction which are the main drivers for the loss of biodiversity. We must realize that it is mainly due to economic growth, there is a vast loss in the biodiversity. Thus, we need to start the various regulation

programmes as well as its redistribution which equalizes the control and use of the natural resources which are remaining on earth (16).

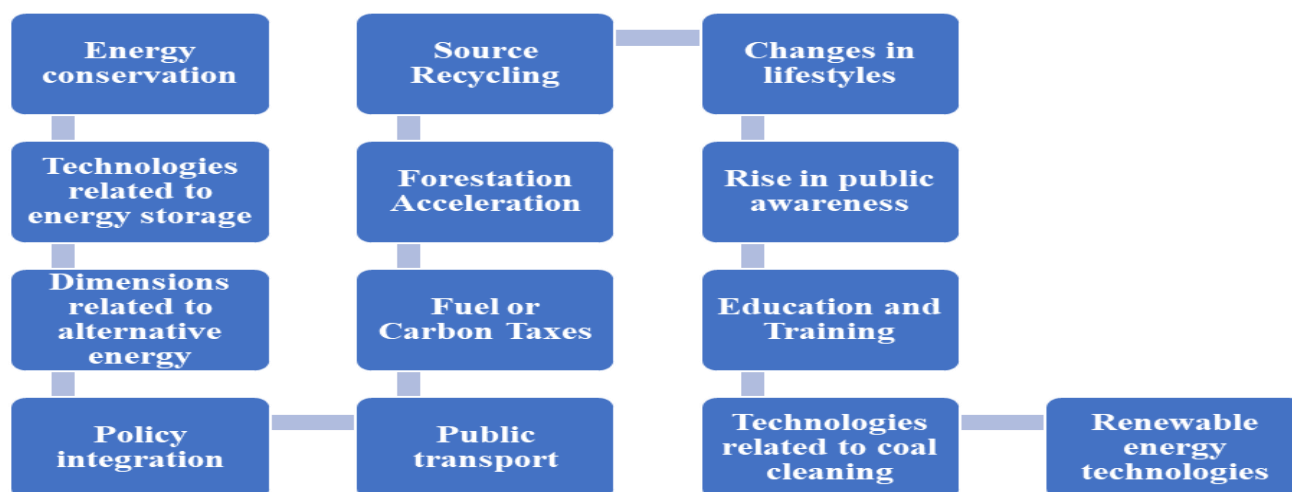


Figure 5: Solutions to reduce environmental problems

To protect the environment there is a need for renewable energy sources such as solar power, wave power, wind power which are very clean resources of energy. People can use the solar energy to harness it in running different appliances and also heating in their homes. It is a unique way which is eco-friendly. The photo voltaic panels can be installed to produce electricity. If majority of the people use public transport facilities, there would be reduction in the advantage of public transport because it can fetch a greater number of people compared to a car. The manufacturers of car are using an innovative engine technology which runs on clean fuels like hydrogen other than that of petrol. For short distance journeys cycling is the best healthy alternative way other than that of driving a big car. To protect the environment, organic products can be produced without the usage of pesticides. These pesticides are very harmful to the environment as well as to the human beings. In household, people can grow their own organic vegetables in their small garden which is not only good to the environment but also good for the humans. There is a need to use green bags which are eco-friendly. Though we are reducing the creation of wastes, still there are many wastes which are thrown into the environment daily. Thus, there is a need to recycle the wastes. To protect the environment, we can follow eco-tourism method. People during their vacations travel to the hot spot areas of the world. Most of the people prefer favourite places connected with modern entertainment, spas and resorts. The strategies related to sustainable mining involves whether mining, monitoring and its measurement operations are most reliable or not (17).

Conclusion:

To safeguard our mother earth there are numerous ways. People must reduce using plastics, reduce carbon footprint by establishing sustainable goals, segregating dry waste and wet waste, stop deforestation. Thus, when we take initiative of improving our mother earth, we not only safeguard our planet but also our own well-being. Also, by taking proper practical solutions we can generate a significant contribution to sustain our mother earth.

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